SUPERIOR WELL SERVICES

SUPERIOR
Hays,
Kansas

DUAL INDUCTION LOG

Company CAERUS KANSAS, LLC.
Well HOFFMAN #18-34
Field DECEPTION CREEK
County BARTON State KANSAS

Location: API # : 15-009-25718-0000
1050' FSL & 1403' FEL
NE - NE - SW - SE
SEC 18 TWP 17S RGE 13W

Other Services
CDL/CNL
MEL/SONIC

Permanent Datum	GROUND LEVEL	Elevation	1922
Log Measured From	KELLY BUSHING 13' A.G.L.		
Drilling Measured From	KELLY BUSHING		

Elevation
K.B. 1935
D.F. 1933
G.L. 1922

Date	7/30/12		
Run Number	ONE		
Depth Driller	3520		
Depth Logger	3518		
Bottom Logged Interval	3516		
Top Log Interval	00		
Casing Driller	8 5/8"@845'		
Casing Logger	846		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5,000 PPM	
Density / Viscosity	8.9/52		
pH / Fluid Loss	11.0/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.400@100F		
Rmf @ Meas. Temp	.300@100F		
Rmc @ Meas. Temp	.480@100F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.357@112F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	3:00 P.M.		
Maximum Recorded Temperature	112F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	ROGER FISHER	BRIAN KARLIN	

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

THANK YOU FOR USING SUPERIOR WELL SERVICE HAYS, KANSAS (785) 628-6395
DIRECTIONS
RUSSELL, KS. & I-70, S. ON HWY 281 TO "RD. 150", 2E., 1S. TO "140", W. INTO

MAIN SECTION

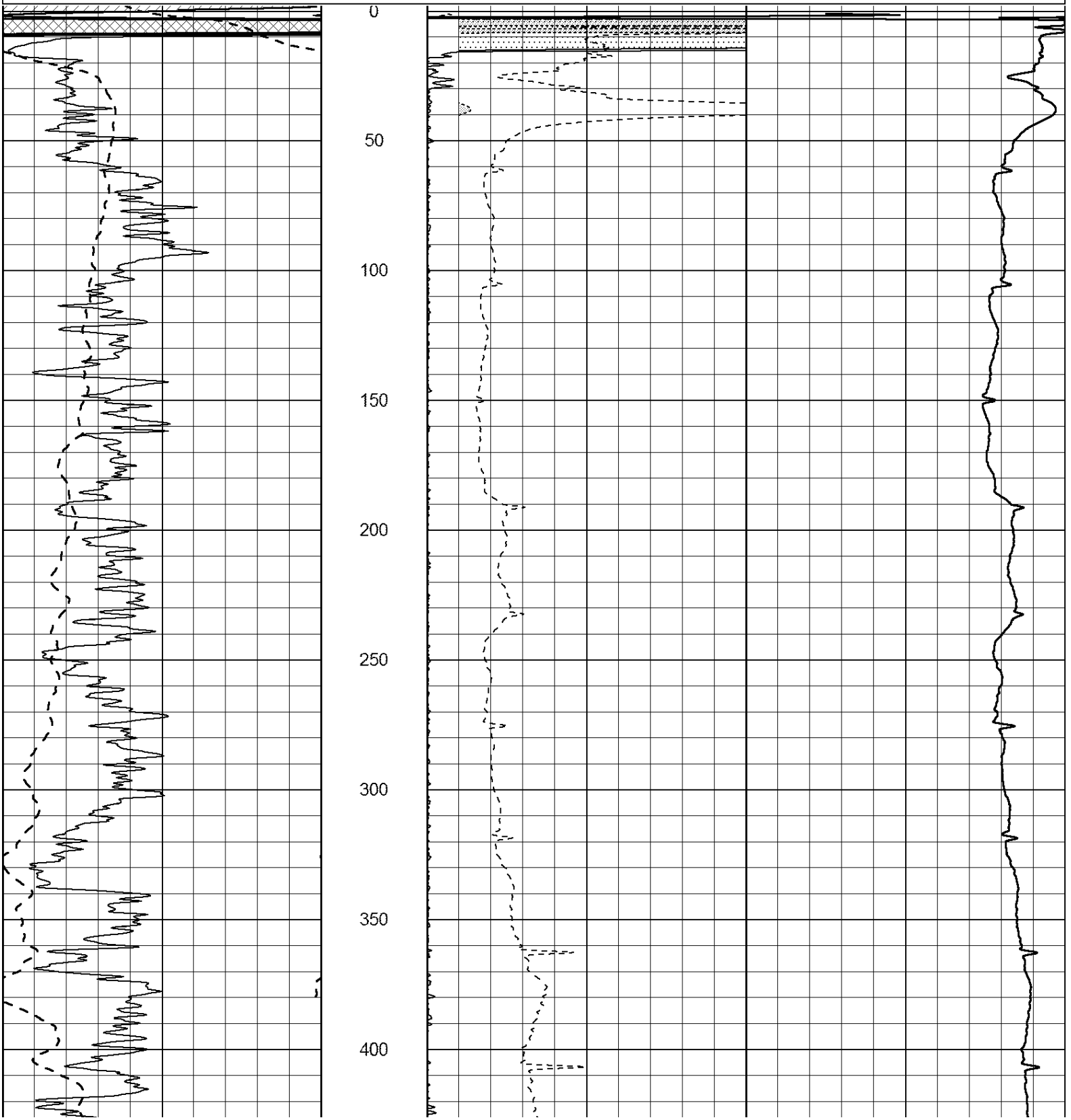
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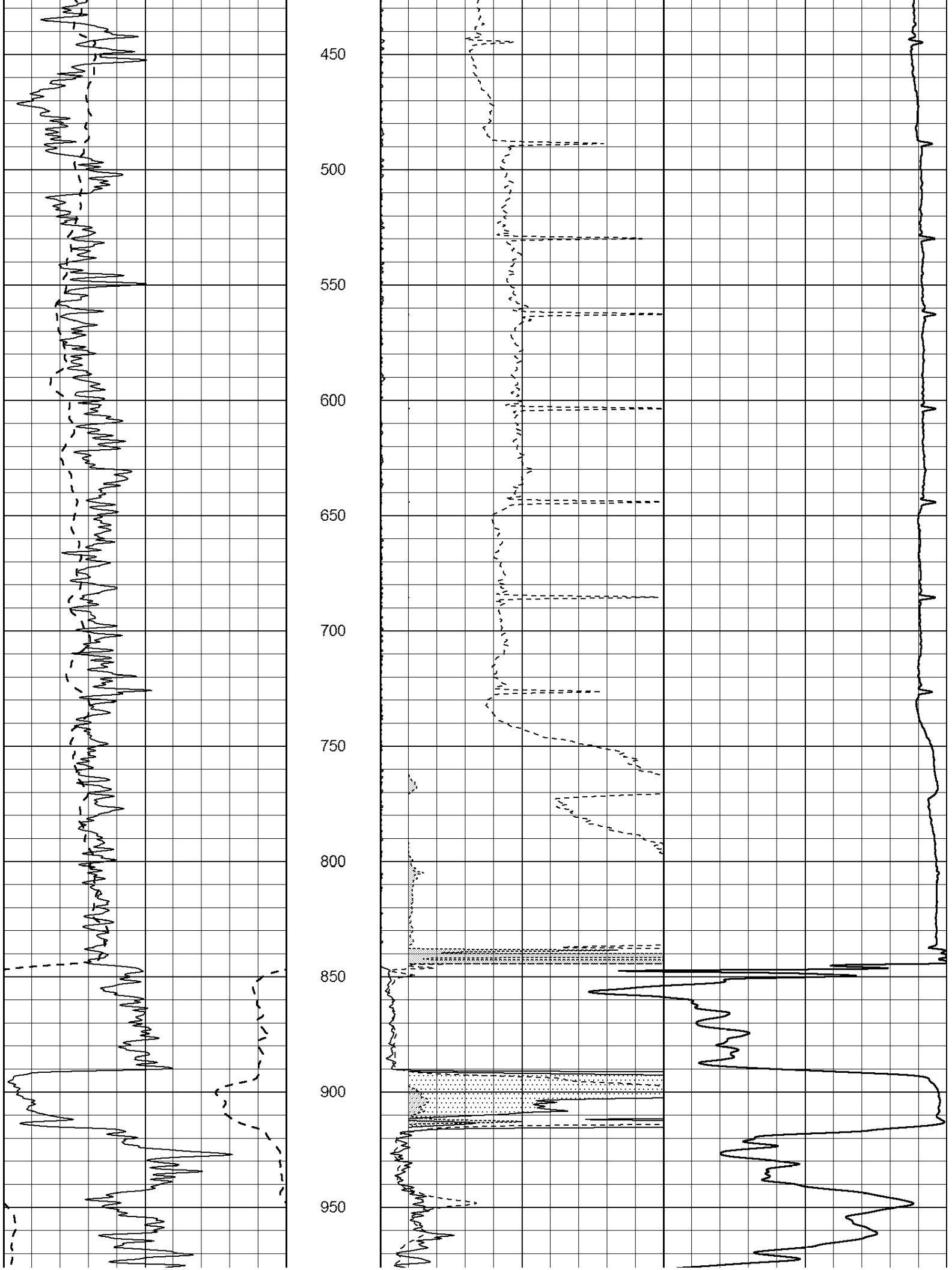
SUPERIOR WELL SERVICES

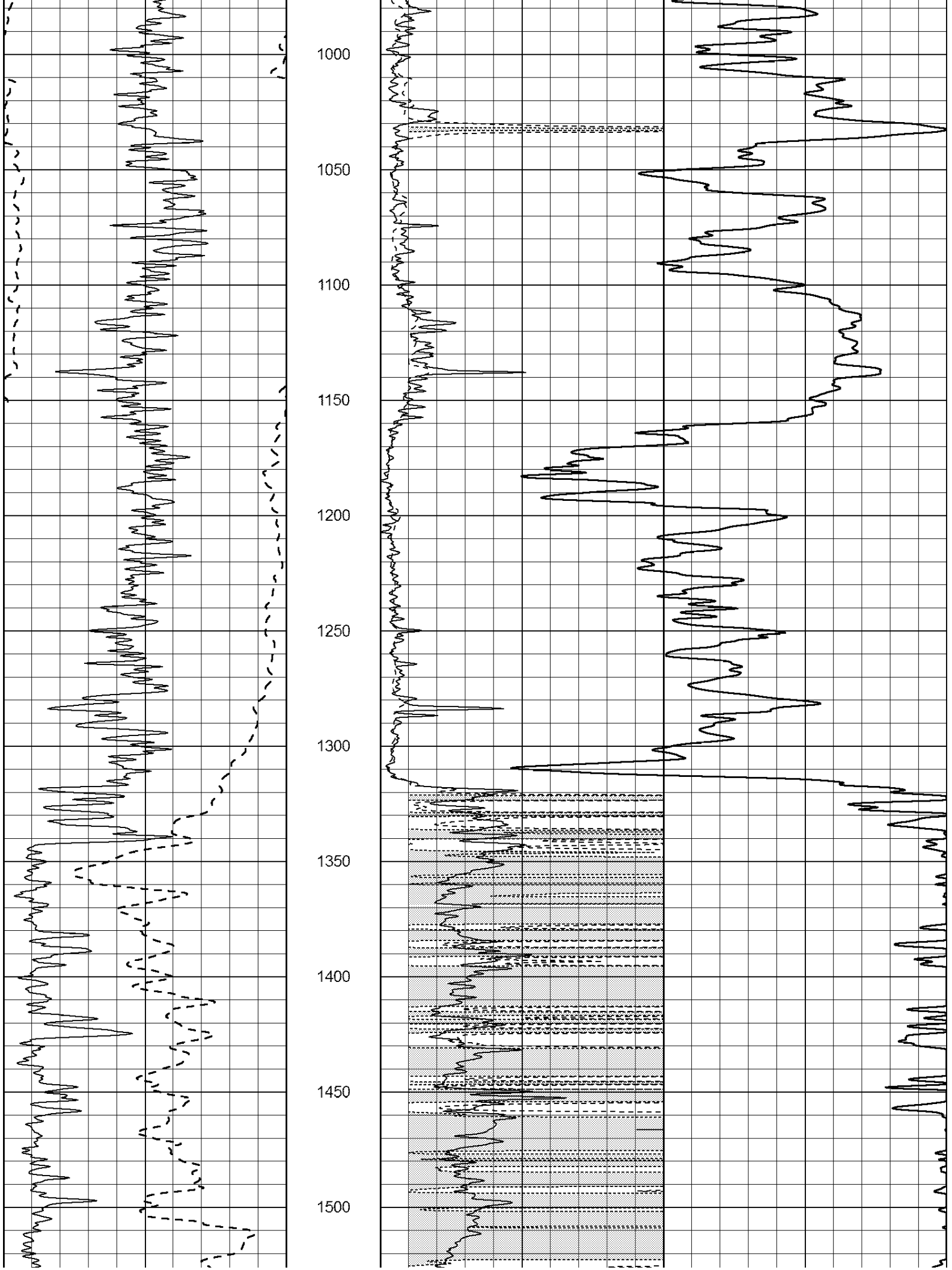
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Charted by:	Depth in Feet scaled 1:600

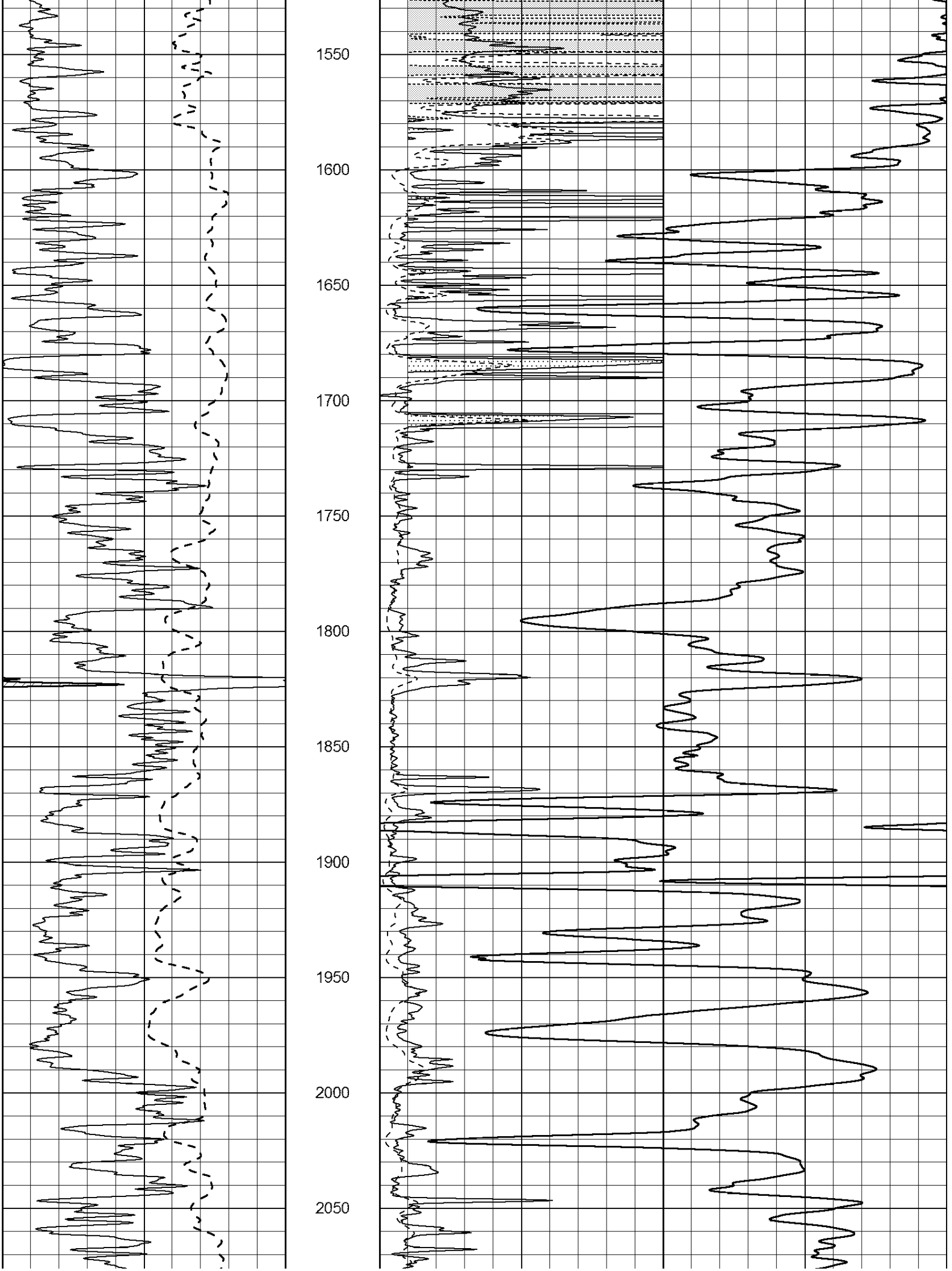
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

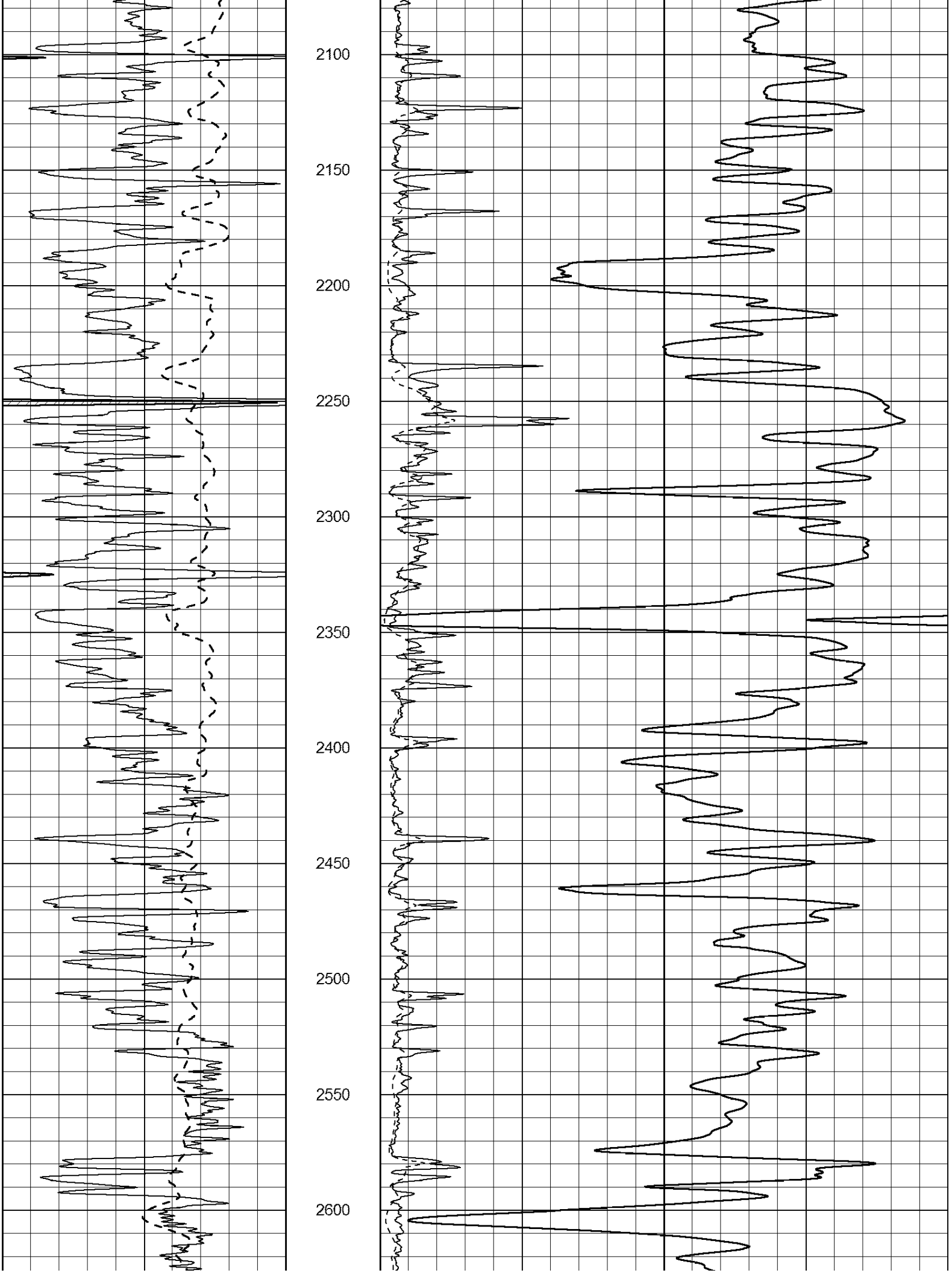
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

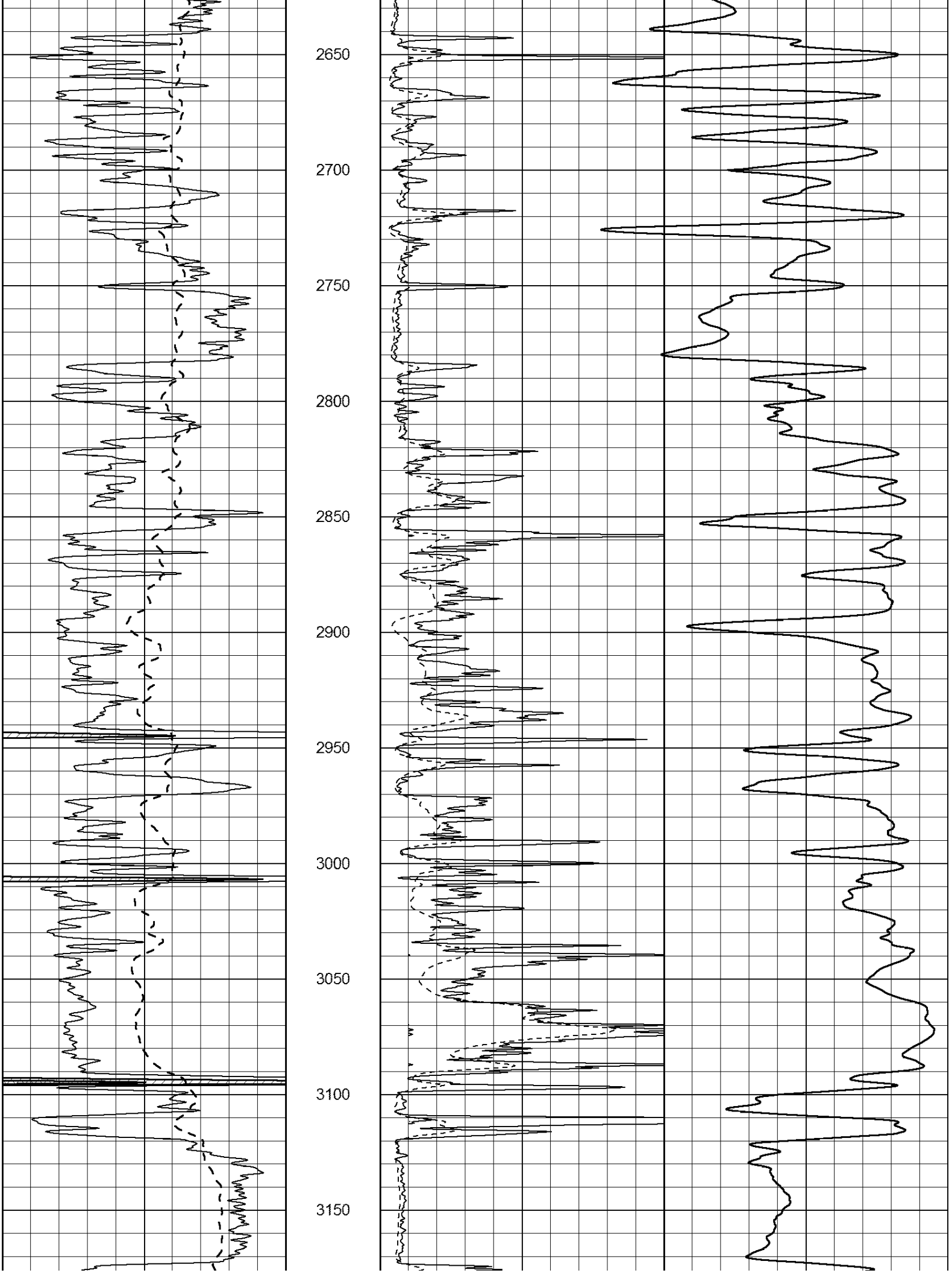


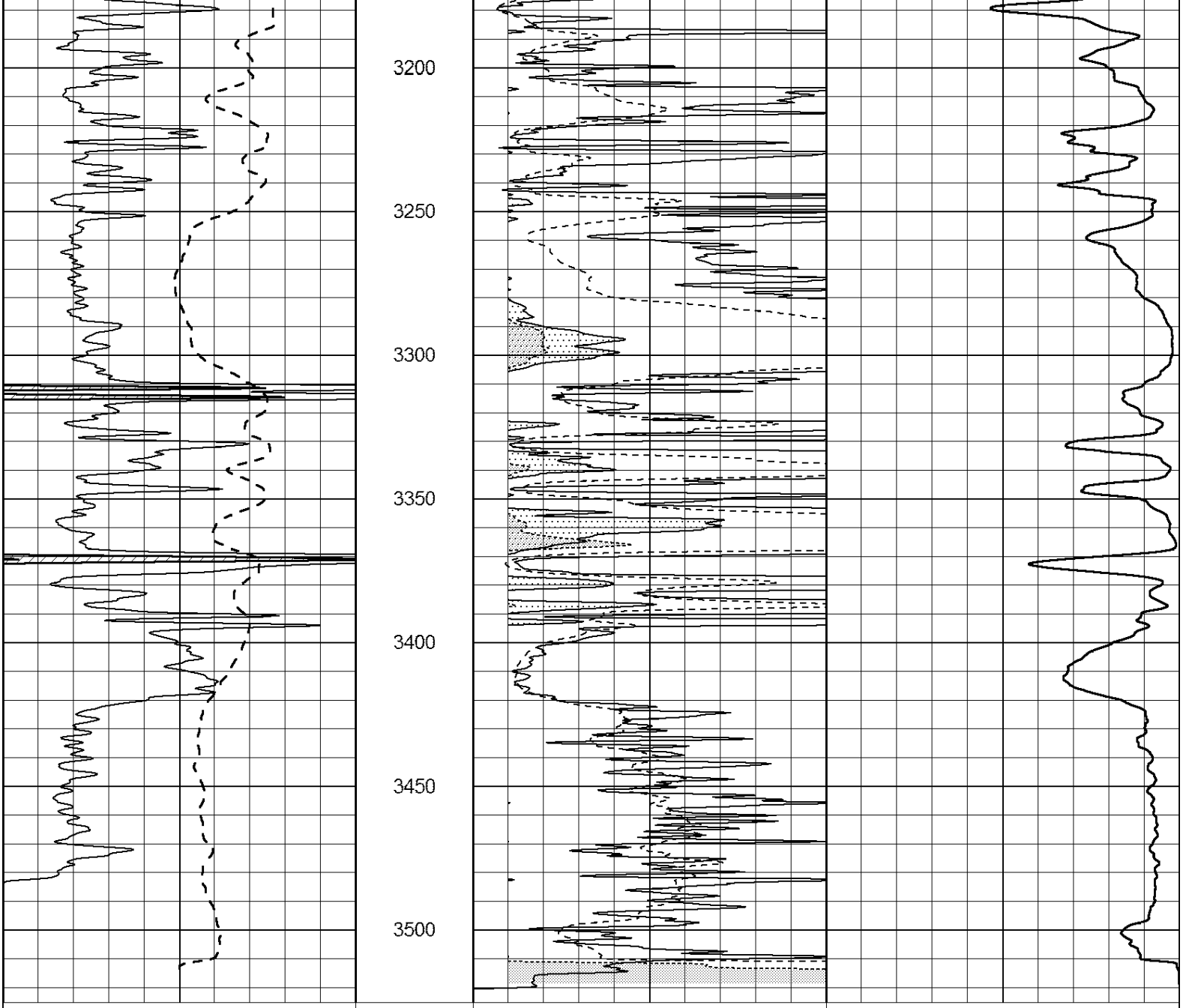

450
500
550
600
650
700
750
800
850
900
950


1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500


1550
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050


2100
2150
2200
2250
2300
2350
2400
2450
2500
2550
2600


2650
2700
2750
2800
2850
2900
2950
3000
3050
3100
3150



0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
1000	CILD (mmho/m)	0
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

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ANHYDRITE

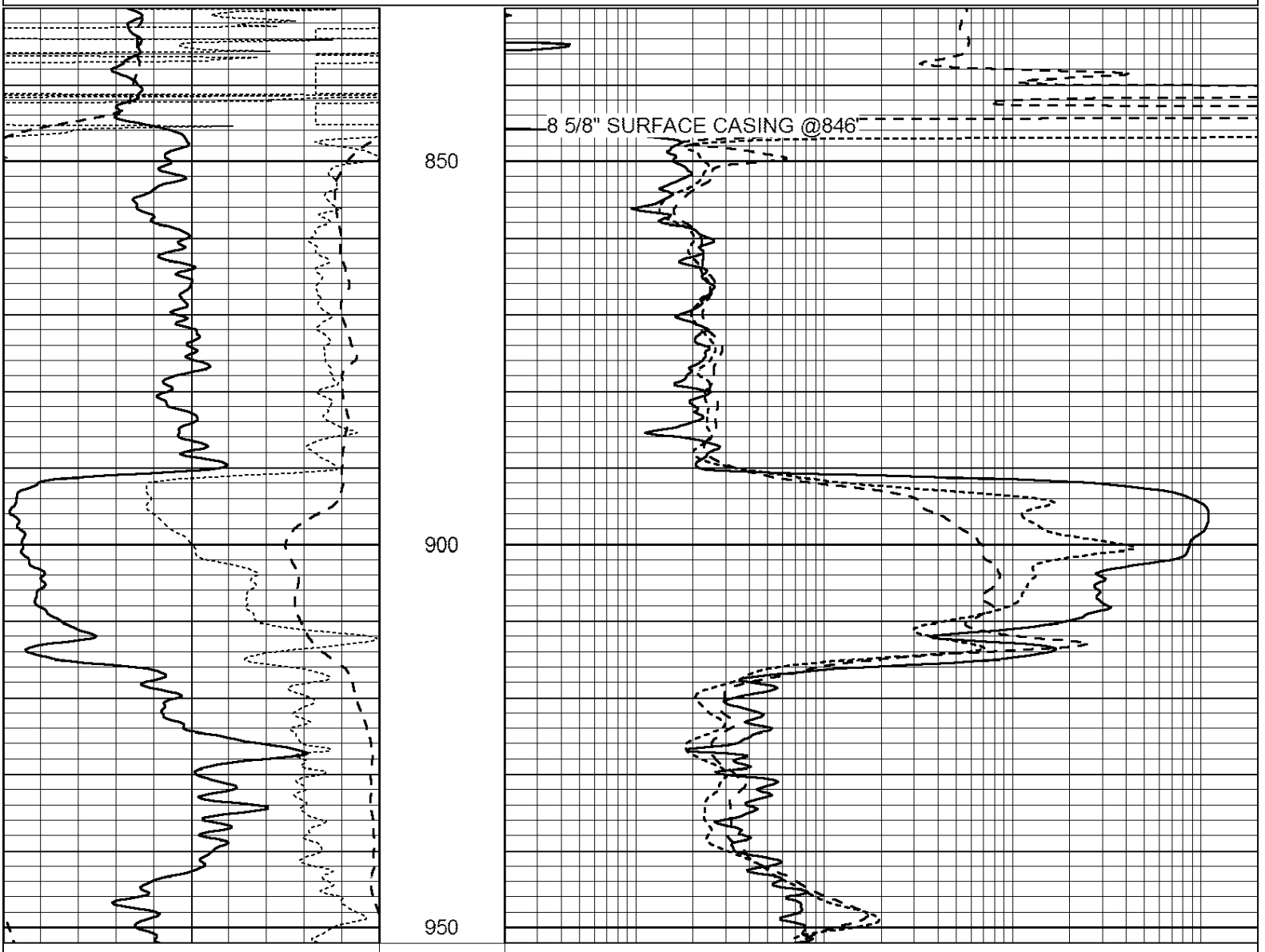
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Dataset Pathname:	pass3.7
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Dataset Creation:	Mon Jul 30 17:15:25 2012
Charted by:	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

-250	Rxo/Rt	50
0	MINMK	20

0.2	MEDIUM INDUCTION (Ohm-m)	2000



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

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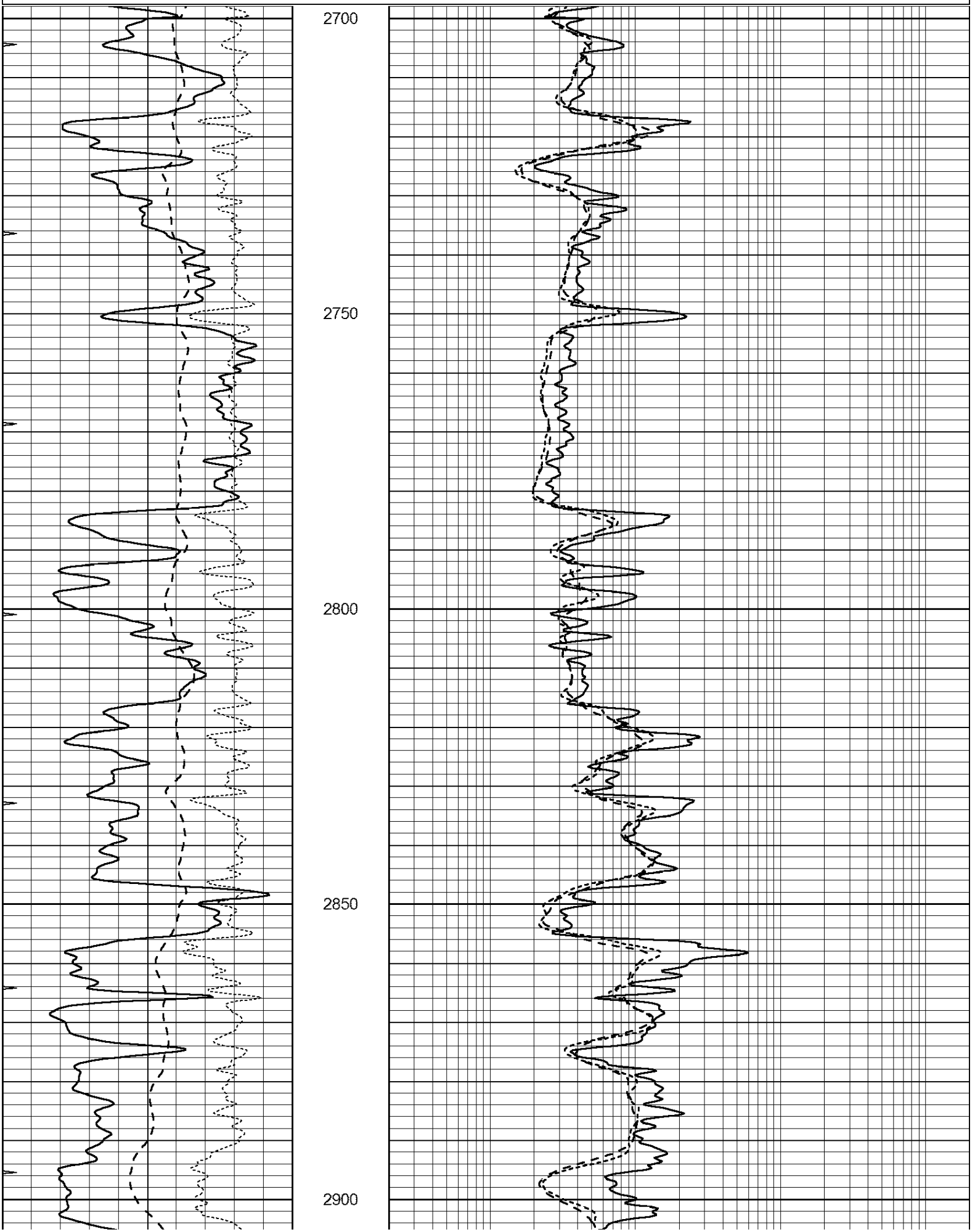
MAIN SECTION

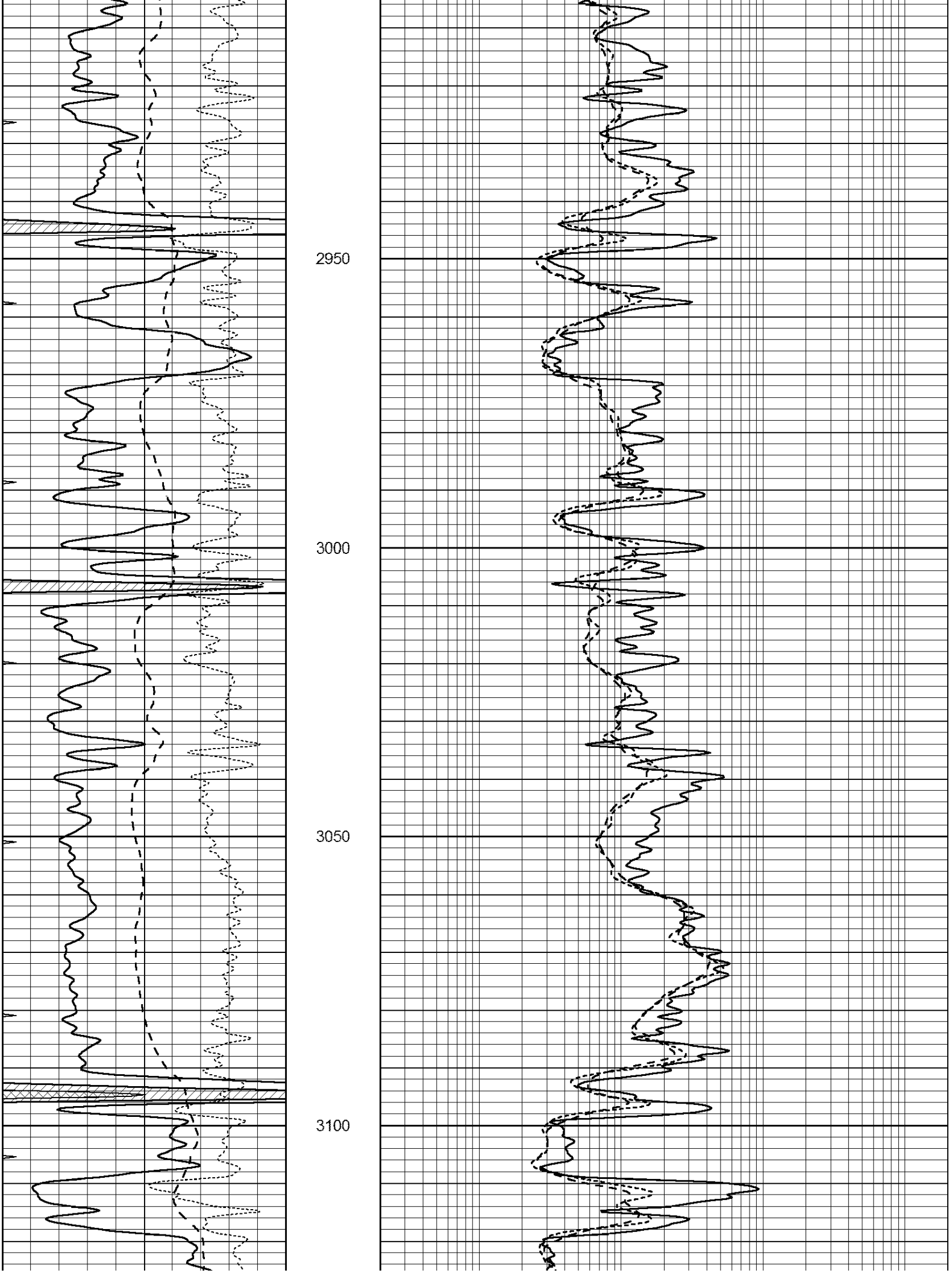
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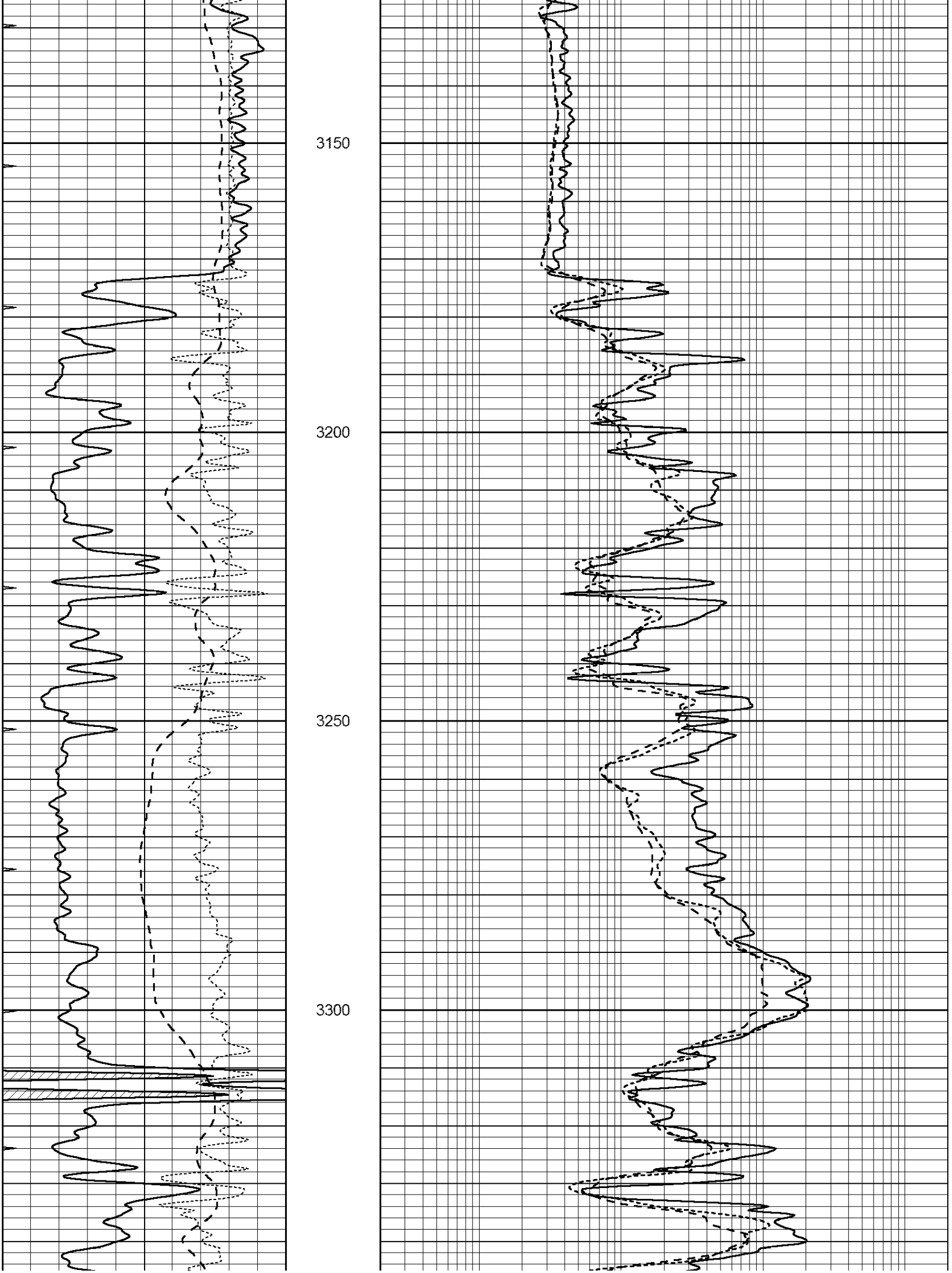
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

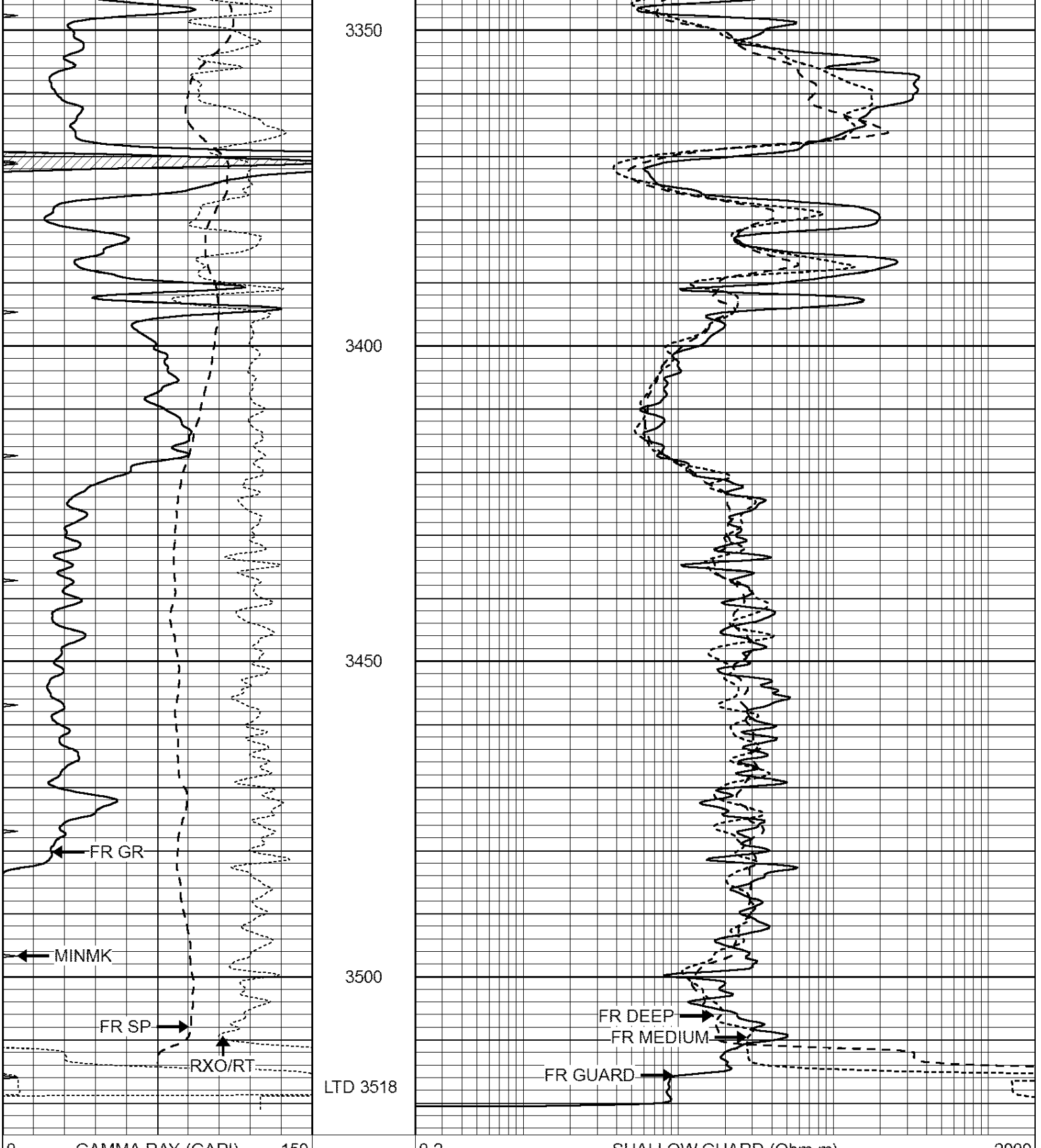
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

0	MINMK	20




2950
3000
3050
3100


3150
3200
3250
3300



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

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REPEAT SECTION

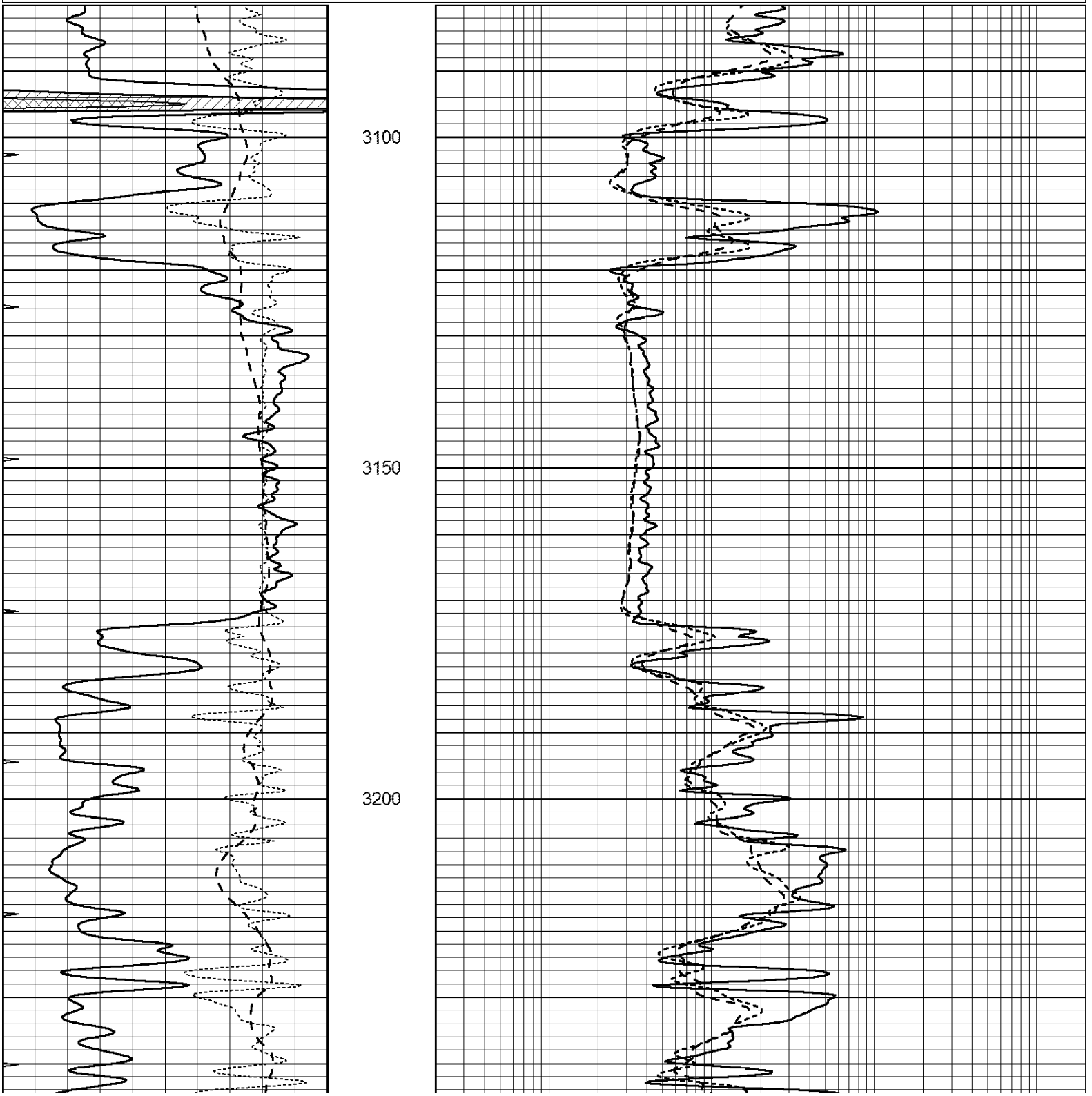
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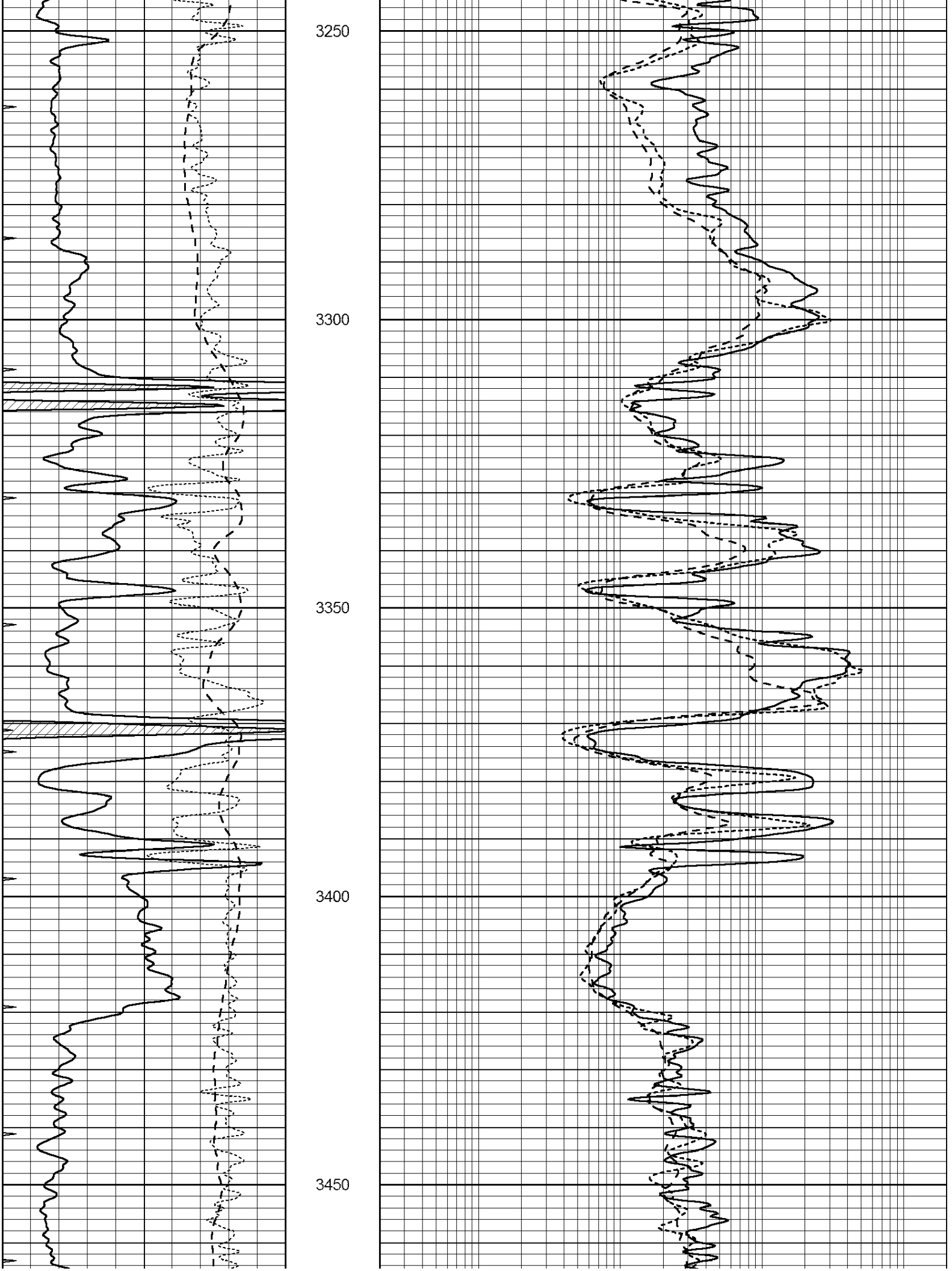
REPEAT SECTION

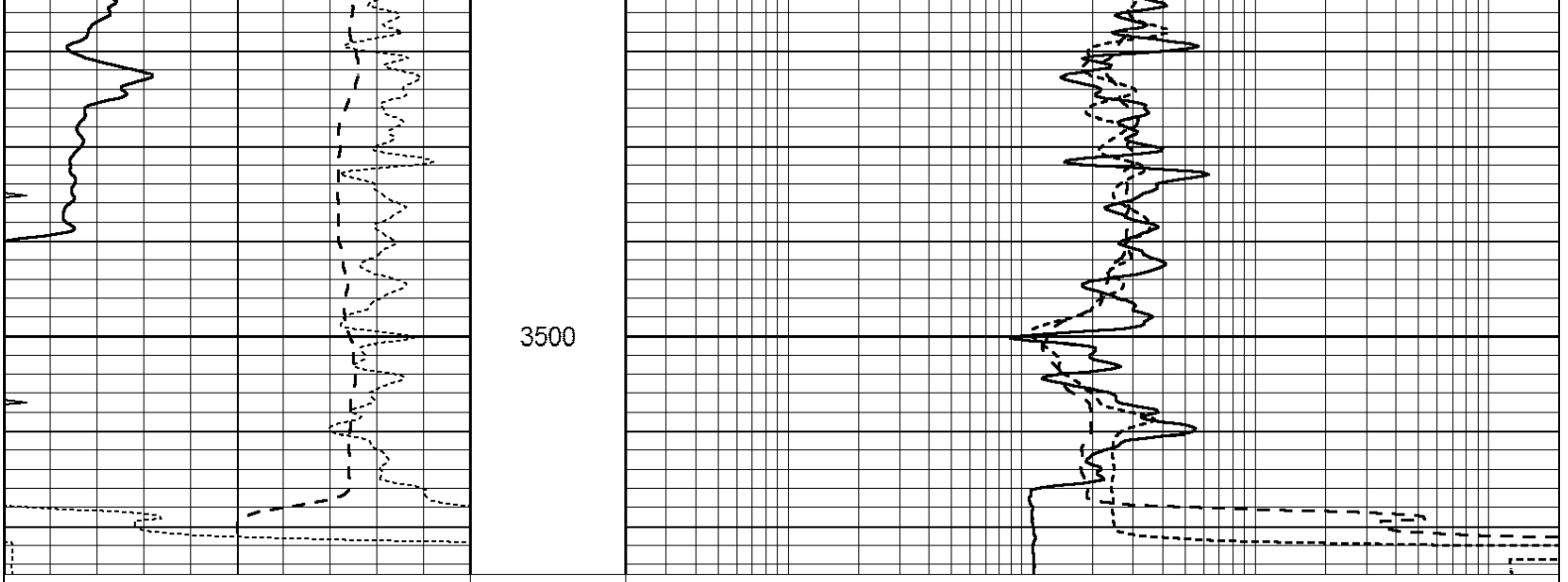
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Presentation Format:	dil
Dataset Creation:	Mon Jul 30 15:28:37 2012 by Calc Open-Cased 110302
Charted by:	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000




3250
3300
3350
3400
3450



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Calibration Report

Database File: 409442ddn.db
Dataset Pathname: pass3.6
Dataset Creation: Mon Jul 30 17:05:16 2012

Dual Induction Calibration Report

Serial-Model: DIL4-GEAR
Performed: Thu Jul 26 17:34:42 2012

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.008	0.666	V	0.000	400.000	mmho/m	570.000	0.000
Medium	-0.003	0.769	V	0.000	462.500	mmho/m	560.000	-1.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.013	0.651	V	0.000	400.000	mmho/m	627.541	-8.365
Medium	0.020	0.754	V	0.000	462.500	mmho/m	630.311	-12.549

Litho Density Calibration Report

Serial: 003N Model: PRB
Performed Tue Sep 08 14:14:44 2009

Litho Density Calibration

	Background	Magnesium	Aluminum	Sandstone	
Window 1	2042.6	12312.8	4225.8	13758.4	cps
Window 2	1855.8	10134.7	3624.2	11113.1	cps
Window 3	1639.4	6760.2	2716.3	7260.3	cps
Window 4	466.4	469.2	466.1	476.5	cps
Long Space	0.0	8278.9	1768.4	9257.4	cps
Short Space	2.2	2377.3	1544.1	2574.2	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe			2.5700	1.5500	

Rib Angle : 44.4 Rib Slope : 0.979 Density/Spine Ratio : 0.549

Spine Angle	: 74.4	Spine Slope	: 3.577	Spine Intercept	: -18.8

Caliper

	Readings	Reference
Low Ref	3.4	8.0
High Ref	5.5	15.0

Gain: 3.3 Offset: -3.3

Compensated Neutron Calibration Report

Serial Number: 070808
Tool Model: Probe

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	070559	
Tool Model:	OPEN_GR	
Performed:	Thu Jul 26 17:34:29 2012	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3000	GAPI/cps